

Space Planning for Research Laboratories

Annual U.S. expenditures for constructing medical research facilities, and biomedical laboratories in particular, have reached a scale where the principles underlying research space planning decisions merit every possible study. One recent investigation in this area was addressed to the question of how the space needs of the "bench" investigator in the biomedical sciences may be translated into architectural terms.

Planning space for research laboratories involves considering the needs of the individual investigator and his immediate personnel, modified by the specific requirements of a scientific discipline and each research institution's policies on assigning space for general furnishings in the laboratory and shared-use scientific equipment.

An intensive study of a 10 percent random sample of the individual research laboratories at the National Institutes of Health, Public Health Service, provides the basis for a number of planning principles advocated.

Three specific space needs are identified for each research laboratory: (a) space for manual procedures; (b) space for processes associated with a specific research discipline; and (c) space for general categories of laboratory furnishings, such as chemical fume hoods and office-type furnishings. The first of these requirements for space is susceptible to a statistical approach in which an arbitrary level or probability of maximum observed use among the group of laboratories studied can be selected. Processes identified with the conduct of a research discipline are ranked in descending order of use and the average space noted for the equipment used in each process is also supplied. Least amenable to a systematic analysis and most influenced by institutional space assignment policies is space for general furnishings.

Factors, such as the number of personnel in a laboratory, are discussed as to the extent to which they influence space requirements. First

approximations of research space needs can be modified using the values furnished for such factors.

While laboratories of a definite size or shape are not specifically proposed, the laboratory planner is shown how a determination of dimensions of repetitive units of laboratory space, termed modules, may be approached. Sufficient descriptive text is included for research institutions desiring to conduct similar studies either to confirm the data presented or to secure additional data.

The quality of flexibility in planning research laboratory space is emphasized throughout to accommodate both changing requirements within a laboratory as well as more substantial departures in research program content, involving relocation of existing laboratories.

Public Health Monograph No. 71

Space Planning for Biomedical Research Laboratories. By Donald L. Snow. Public Health Monograph No. 71 (PHS Pub. No. 1025), 56 pages. U.S. Government Printing Office, Washington, D.C., 1963, 40 cents.

The accompanying summary covers the principal contents of Public Health Monograph No. 71. The author is a sanitary engineer now assigned to the Division of Radiological Health, Bureau of State Services, Public Health Service. He formerly was chief, Laboratory Design Documentation Project, Division of Research Services, National Institutes of Health, Public Health Service.

Official agencies and others directly concerned may obtain single copies from the Public Inquiries Branch, Office of Information, Public Health Service, Washington, D.C., 20201. Copies will be found also in libraries of professional schools and major universities and in selected public libraries.

For readers wishing the data in full, copies are on sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402.



Federal Publications

What Can You Do for Clean Water? **Insert: Letter from President's Water Pollution Control Advisory Board.** *PHS Publication No. 1055; 1963; leaflet; illustrated.* Explains unmet needs as well as what is being done to control water pollution. Enlists citizen support of clean water programs at community, State, and Federal levels, suggesting what citizens can do at each level. Insert acknowledges individual letters to the President's Water Pollution Control Advisory Board in response to the 1963 nationwide TV-radio clean water public service announcements.

Cancer Manual for Public Health Nurses. *PHS Publication No. 1007; 1963; 112 pages; 55 cents.*

Selected information about cancer and the nursing care which patients need in the home before and after treatment is presented. An appendix chart lists the kinds of cancer, common sites of metastasis, and complications which may occur.

Black and white illustrations and several color reproductions are included.

The Ecology and Sociology of the Norway Rat. *PHS Publication No. 1008; 1963; by John B. Calhoun; 288 pages; \$1.75.*

A 27-month history of a population of wild Norway rats confined in a quarter-acre pen is reported. Observation of marked rats enabled determination of the manner in which interactions between rats produced alterations in reproduction, growth, survival, social status, and the restructuring of the population into colonies.

The information provides a background for evaluating results of more extensive field studies of natural populations where the age and individuality of subjects or specimens are unknown. For persons con-

cerned with behavior and physiology of domesticated strains under laboratory conditions, it enables an appreciation of the complexities of adjustment tolerated by the species under more natural conditions.

This pioneering study of a species confined in a large enclosure establishes guidelines for "compound studies," an emerging field of research with considerable promise for supplementing laboratory and field studies.

Nursing Careers in Mental Health. *PHS Publication No. 1051; 1963; 12 pages; 15 cents.* Prepared for high school students, this booklet describes challenges and needs in the psychiatric nursing profession. Expanding opportunities for both men and women are explained in connection with research advances and the modern-day trend to focus mental health services in the community. Some specific academic guideposts are included to aid students planning to enter the psychiatric nursing field. Available Federal support at different levels of study is discussed.

Manpower for Medical Research, Requirements and Resources, 1965-1970. *PHS Publication No. 1001 (Resources for Medical Research Series, Report No. 3); 1963; 72 pages; 55 cents.*

A study of medical research manpower resources and requirements indicates that expansion of national expenditures for medical research to a projected level of \$3 billion for 1970 will require the addition of 45,000 competent personnel and greatly accelerated provision of facilities and equipment.

In arriving at this finding, the study explores trends in employment of scientific and professional re-

search manpower, flow of M.D.'s and Ph.D.'s into medical sciences, college enrollment patterns, requirements for enlarging the pool of research manpower, and the broad implications for national policy in the context of the nation's growing expenditures for medical research. Charts and summary tables provide detailed analyses of trends, resources, and requirements.

The report was originally prepared in 1962 at the request of the House Committee on Appropriations.

Mental Health Project Grants. *PHS Publication No. 1052; 1963; 8 pages; 5 cents.* Research areas and activities for which grant support can be awarded in the mental health project grants program of the National Institute of Mental Health are described. Included are discussions on levels of support provided, who may apply for a grant, how to apply, and where applicants can obtain consultation on research project development. A section on review of applications provides a general outline of the review process, lists the yearly schedule of application deadlines and review meetings, and indicates some criteria used to select research projects for Federal support.

Do You Need a Sanitary Landfill? *PHS Publication No. 1012; 1963; 6 pages; leaflet; 5 cents, \$3 per 100.* Describes the sanitary landfill and its advantages in communities.

This section carries announcements of new publications prepared by the Public Health Service and of selected publications prepared with Federal support.

Unless otherwise indicated, publications for which prices are quoted are for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402. Orders should be accompanied by cash, check, or money order and should fully identify the publication. Public Health Service publications which do not carry price quotations, as well as single sample copies of those for which prices are shown, can be obtained without charge from the Public Inquiries Branch, Public Health Service, Washington, D.C., 20201.

The Public Health Service does not supply publications other than its own.
